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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/813,257	03/19/2001	Lowell E. Kolb	10001844-1	2624

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HEWLETT-PACKARD COMPANY
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EXAMINER

DINH, TUAN T

ART UNIT PAPER NUMBER

2827

DATE MAILED: 08/28/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/813,257

Applicant(s)

KOLB ET AL.

Examiner

Tuan T Dinh

Art Unit

2827

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 June 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-21 is/are pending in the application.
- 4a) Of the above claim(s) 18-21 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 3-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

1. Applicant's election without traverse of Group I (claims 1, 3-17) in Paper No. 8 is acknowledged.

Claim Objections

2. Claims 3, 11, 12, 15 are objected to because of the following informalities:

Claim 3, line 2, change "the leads of a component" to --leads of the components--

Claim 12, lines 5-6, change "by an series of component leads" to --by component leads--.

Claim 11, line 6, change "at least one or more cavity openings" to --the at least one or more cavity openings--.

Claim 15, line 2, what is that meant of "ppcured"

Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
4. Claims 12-17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claims 12, lines 5-6, it is unclear. The phrase of "...defined by an series of component leads, the component body adjacent the series of leads..." is not understood. Does applicant mean "the component having a series of leads?"

Regarding claim 15, it is confuse. The phrase of "a low viscosity, high adherence dielectric coating that, when applied and ppcured, covers...the plurality of cavities" is not understood.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

6. Claims 1, 3-17 are rejected under 35 U.S.C. 102(e) as being anticipated by McCullough et al. (U. S. Patent 6,127,038).

As to claim 1, McCullough discloses a printed circuit board (PCB, 12-figure 1, column 2, line 37) comprising:

a printed wiring board (12);

a plurality of components (22, column 3, line 1) mounted on said PWB, wherein the PCB has a cavity with one or more openings (underneath of component 22) to the surface of the PCB; and

Art Unit: 2827

an electrically non-conductive filler material (14, column 3, lines 8, 52-64) disposed in the cavity and on the surface of the PCB immediately surrounding the cavity so as bridge across the one or more cavity openings and to at least partially infill the cavity, wherein the cavity is substantially inaccessible to subsequently-applied coatings (16, column 3, line 15).

As best understood to claims 12, and 15-16, McCullough discloses a printed circuit board (PCB, 12-figure 1, column 2, line 37) comprising:

a printed wiring board (12);

a plurality of components (22, column 3, line 1) having a device body mounted on said PWB to form one or more regions of the PCB having a high variable and cavitation surface including a plurality of cavities defined by component leads, wherein the PCB has a cavity with one or more openings (underneath of component 22) to the surface of the PCB; and

a layer of non-electrically-conductive filler material (14, column 3, lines 8, 52-64) conformingly adhered to the PCB surface in the one or more regions to provide a contoured, contiguous filler material surface having gradual transition, wherein the filler material bridge across the cavity openings and at least partially infill the cavity, wherein the PCB further comprises a low viscosity dielectric coating (16) so that the filler material prevent the dielectric coating from entering the plurality of cavities.

As to claim 3, McCullough discloses the PCB (12) wherein the cavity comprises a volume of space define by leads (24, column 3, line 2) of the components (22), the

Art Unit: 2827

component body and the PWB, wherein the volume of space has a plurality of openings to the surface of the PCB between neighboring component leads.

As to claims 4-5, McCullough discloses the PCB wherein the cavity comprises a volume of space between neighboring components mounted on the PCB.

As to claims 7 and 14, McCullough discloses the PCB wherein said filler material is an epoxy (column 3, line 34).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 6, 8-11, 13-14, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over McCullough et al. (U. S. Patent 6,127,038).

As to claim 6, 8-10, 13-14, and 17, McCullough does not disclose the filler material is thixotropic epoxy, wherein the epoxy is one of the family of Bisphenol-A epoxies mixed with an amine hardener, wherein the epoxy is a thermal cured epoxy, latex based non-electrically conductive epoxy. However, it is well known in the art to use thixotropic epoxy as filler material. Further, it would have been obvious to one of ordinary skill in the art at the invention was made to use the filler material as the thixotropic epoxy, wherein the epoxy is one of the family of Bisphenol-A epoxies mixed with an amine hardener, wherein the epoxy is a thermal cured epoxy, latex based non-

electrically conductive epoxy for purpose of reducing heat and against EMI from components mounted on the PCB, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

As to claim 11, McCullough discloses the PCB wherein the subsequently-applied coating (16) comprises a layer of dielectric coating that conformingly coats exposed surfaces of the PCB including the filler material (14), the dielectric coating formed of a low viscosity material (column 3, lines 65-66) that facilitates accurate application of the dielectric coating, wherein the at least one or more cavity openings is sufficiently large to prevent the dielectric coating from bridging across the cavity openings without the presence of the filler material.

The limitation "the dielectric coating using a spray atomized technique" has been considered. However, the presence of process limitation in product claims, which product does not otherwise patentably distinguish over prior art, cannot impart patentability to that product. *In re Stephens* 145 USPQ 656 (CCPA 1965).

Response to Arguments

9. Applicant's arguments with respect to claims 1, 3-17 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Sanftleben et al. and Lynch disclose related art.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tuan T Dinh whose telephone number is 703-306-5856. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David L. Talbott can be reached on 703-305-9883. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-1341 for regular communications and 703-305-1341 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

TD
August 15, 2002


KAMAND CUNEO
PRIMARY EXAMINER